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NONDESTRUCTIVE TESTING

WHAT IS DESTRUCTIVE TESTING?

HARDNESS TEST

↳ NONDESTRUCTIVE ON RCT

↳ DESTRUCTIVE ON HIP IMPLANT

Definition of NDT

ANY form of testing WHICH DOES NOT affect the final usability of a component.

↳ Depends on TEST

↳ Depends on component.

VERY DESTRUCTIVE TESTS.

→ Tensile strength test.

→ Fatigue testing.

↳ cycled loads to failure

Destructive testing relies on STATISTICS

NDT allows every component to be tested.

↳ does not mean that you know everything about every component

WHY NDT not Destructive?

* to test every component:

- ↳ e.g. if safety is v. v. important
- ↳ " quality is very important
- ↳ if parts are very expensive

vs. Quality Control
Quality Assurance

* IN service testing ...

↳ look for flaws that have occurred in-use
may have grown from factory process defects.

↳ Retire components if faulty.
avoiding early failure

↳ extend the life of components
↳ look, see it's ok, return to service

↳ allow defects present (maybe)
watch them over time

↳ espec. important if components are expensive

↳ Safety

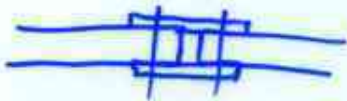
NDT are a continuing process.

- ↳ components & raw materials
- ↳ test before shipping
- ↳ During service
 - ↳ intervals, active process
 - ↳ Having regular, planned NDT allow you to avoid (some) unplanned maintenance



Visual Inspection

- ↳ Railways, Permanent Way.



Testing only needs to see things which will/could cause problems.

- ↳ depends on industry/application

Especially in Visual inspection

But in all other types of NDT too
Expertise/Experience is very important

A) WHAT TO LOOK for
& HOW TO LOOK for IT

B) INTERPRETING results & making
Decisions afterwards.

Visual Inspection

Look for DAMAGE. ← WEAR & TEAR OR TRAUMA

Look at SHAPE
SIZE
Surface (finish)
CONDITION } → at end of
manufacturing

Aids : optics

Guides e.g. ruler (simplest case)

SURFACE PREPARATION.

↳ e.g. Stain to make flaws
more apparent.

↳ e.g. clean surface

Visual Inspection is generally 1st test performed.

- cheap
- simple
- ubiquitous everywhere